



III.

ON THE USE

OF

BELLADONNA IN SCARLATINA.

(This paper appeared in the 'British and Foreign Medico-Chirurgical Review' for January, 1855, as a review of the following works:—

1. *Cure and Prevention of Scarlet Fever*. By SAMUEL HAHNEMANN. ('Lesser Writings' of the Author, collected and translated by R. E. DUDGEON, M.D.).
2. *Travaux Thérapeutiques sur la Belladone*. Publiée par A. L. J. BAYLE. (Tome Seconde de 'Bibliothèque de Thérapeutique.')—Paris, 1830.
3. *Homœopathy: its Tenets and Tendencies*. By Professor SIMPSON.—Edinburgh, 1853.
4. *Homœopathy fairly Represented*. By Professor HENDERSON.—Edinburgh, 1853.)

SINCE the immortal discovery of Jenner, whereby one of the most frightful and most fatal diseases from which the human race has ever suffered was deprived alike of its terrors and its victims, the cultivators of medicine have been justly animated by the hope that their science might be caused to yield other services of a kindred nature to mankind.¹ Nor has there been any want of real and earnest activity in a work which, since the introduction of vaccination, all must have had more or less at heart. For whether or not we concede to belladonna the prophylactic virtues in scarlatina which not a few have claimed for it, we are at all events called upon to acknowledge, that from very many the subject has, at various times during the

¹ "I believe," says Dr. Simpson, "medicine will yet most probably discover prophylactic measures against scarlet fever, measles, &c."—'Homœopathy,' p. 230, note at foot of page.

five-and-fifty years it has been under discussion, received all that attention and patient investigation which every right-thinking man will readily and heartily admit to be its due.¹ That a disbelief in the alleged power of belladonna should have taken possession of the mind of the profession generally, and more particularly in this country, was scarcely to be wondered at, when we consider the quarter from which the recommendation of its vaunted virtues proceeded, and the manner in which the test of its efficacy was required to be determined. But though apologising for the feeling at first entertained by the bulk of medical men in regard to the announcement of the prophylactic action of belladonna, we are not to be held as thereby approving it, far less defending the course of procedure which it in some cases engendered; for, on the contrary, when regard is had to the frequency as well as to the extremely fatal nature of many epidemics of scarlet fever, whose ravages it was upheld both to mitigate and repress, we do feel that the mere circumstance of Hahnemann being its originator and strongest advocate formed no excuse for belladonna being either

¹ We may remind our readers that very many other prophylactics have been recommended and actually employed in scarlatina besides the exhibition of belladonna. In regard to such we find Joseph Frank writing: "*Ad scarlatinam præpediendam commendata fuere: errhina et collutoria ex ammoniâ cum sufficiente quantitate aquæ; acida mineralia diluta tum interne, tum externe sub formâ gargarismatis: subfumigia vel ope acidi muriatici sive simplicis sive oxygenati, vel ope acidi nitrici; minimæ doses succi inspissati herbæ atropæ belladonnæ; et ipsa scarlatinæ insertio, de quarum autem rerum effectibus, cum non quivis homo necessario scarlatinæ subijci debeat, arduum est judicare.*"—'*Præceps Medicæ Universæ Præcepta*,' vol. ii, par. i, p. 221, Leipzig, 1815.

"Si l'action de la belladone est encore douteuse, malgré le grand nombre de ses partisans, celle des autres préservatifs est encore bien plus hypothétique. Ainsi on a prononcé une combinaison de soufre doré et de calomel. La dose, pour les enfants de deux à quatre ans, est d'un sixième ou d'un huitième de grain de calomel uni à autant de soufre doré d'antimoine, et mêlé à un peu de sucre ou de magnésie; on répète cette dose trois ou quatre fois par jour. Cette méthode a été conseillée par un médecin Hollandais (E. J. Thomassen, à Thuessink), qui affirme que dans toutes les familles où l'on fit l'usage du préservatif, la scarlatine ne sévit pas. Il cite l'observation d'un enfant qui sous son influence n'eut ni mal de gorge ni éruption, mais la desquamation consécutive."—'*Traité Clinique et Pratique des Maladies des Enfants*,' par MM. Barthez et Rilliet, deuxième édition, tom. iii, p. 208.

neglected or passed by. Some there were who entered at once upon the examination and investigation; and during the lengthened period that has since elapsed, abundant opportunities have been seized and turned to the best account.

But while we readily allow the same privilege to Hahnemann and his followers as we claim for the disciples of our own School, in so far as the propriety of investigating the peculiar virtue claimed for belladonna by the former was incumbent upon both, we at the same time do conscientiously believe that had it owed its suggestion and enforcement to such a physician as Laennec, or even to Bayle,¹ the question of the prophylactic action of belladonna would have long ere this been settled in the one way or in the other. Once propounded, the claim advanced would have been rigidly examined, and not accepted as correct by some upon what we shall presently show to have been most insufficient grounds, nor rejected in several instances, as we believe, upon grounds certainly not more reliable. For ourselves, we are clearly of opinion that the time and occasion have now arrived when the question of the prophylaxis of belladonna can readily and satisfactorily be answered—and, as we think, in the negative. But, desirous as we are of doing our opponents—we have now declared our own view—every justice, and the subject itself being full of interest, we shall devote this article to a reconsideration of the whole matter.

Although the discovery of the supposed prophylactic action of belladonna in scarlatina has been attributed to Castelliz, of Vienna,² there appears little doubt that the idea originally occurred to the mind of Hahnemann, and no doubt that by him the subject was first introduced to the notice of the profession. The former happened when he was resident at Königsutter, in 1799. Two years thereafter he published a pamphlet, entitled ‘Heilung und Verhütung des Scharlachfiebers,’³ from the translation of which, in Dr. Dudgeon’s edition of the ‘Lesser Works of

¹ Bayle manifestly gave it his support, but to a certain extent, and in a certain sense, the theory whose associated facts Bayle has done much service in recording, was tarnished in its propounder.

² See “Lectures on Materia Medica and Therapeutics,” by G. G. Sigmond, M.D., Lecture xiii; ‘Lancet,’ vol. ii, 1836-37.

³ Originally published at Gotha in 1801.

Hahnemann,' we extract his own account of the manner in which his discovery was made.

"The mother of a large family, at the commencement of July, 1799,¹ when the scarlet fever was most prevalent and fatal, had got a new counterpane made up by a sempstress, who (without the knowledge of the former) had in her small chamber a boy just recovering of scarlet fever. The first-mentioned woman on receiving it examined it, and smelt it, in order to ascertain whether it might not have a bad smell that would make it necessary to hang it in the open air; but as she could detect nothing of the sort, she laid it beside her on the pillow of the sofa, on which some hours later she lay down for her afternoon's nap. She had unconsciously, in this way only (for the family had no other near or remote connection with scarlatina patients), imbibed this miasm. A week subsequently she suddenly fell ill of a bad quinsy, with the characteristic shooting pains in the throat, which could only be subdued after four days of threatening symptoms. Several days thereafter her daughter, ten years of age, infected most probably by the morbid exhalations of the mother, or by the emanations from the counterpane, was attacked in the evening by severe pressive pain in the abdomen, with biting itching on the body and head, and rigor over the head and arms, and with paralytic stiffness of the joints. 'She slept very restlessly during the night, with frightful dreams, and perspiration all over the body excepting the head. I found her in the morning with pressive headache, dimness of vision, slimy tongue, some ptialism, the submaxillary glands hard, swollen, painful to the touch, shooting pains in the throat on swallowing and at other times. She had not the slightest thirst, her pulse was quick and small, breathing hurried and anxious; though she was very pale she felt hot to the touch, yet complained of horripilation over the face and hairy scalp; she sat leaning somewhat forwards, in order to avoid the shooting in the abdomen, which she felt most acutely when stretching or bending back the body; she complained of a paralytic stiffness of the limbs with an air of the most dejected pusillanimity and shunned all conversation. 'She felt,' she said, 'as if she could only speak in a whisper.' Her look was dull and yet staring, the eyelids inordinately wide open, the face pale, features sunk.

"Now I knew only too well that the ordinary favourite remedies, as in many other cases, so also in scarlatina, in the most favorable cases leave everything unchanged; and, therefore, I resolved in this case of scarlet fever just in the act of breaking out, not to act as usual in reference to individual symptoms, but if possible (in accordance with my new

¹ The 14th of May, 1796, was, as Dr. Watson happily terms it, "the birthday of vaccination;" it is not unlikely that during the period from May, 1796, to July, 1799, the mind of Hahnemann had been strongly directed to the subject of the prevention of contagious diseases.

synthetical principle) to obtain a remedy whose peculiar mode of action was calculated to produce in the healthy body most of the morbid symptoms which I observed *combined* in this disease. My memory and my written collection of the peculiar effects of some medicines furnished me with no remedy so capable of producing a counterpart of the symptoms here present as *belladonna*.

"It alone could fulfil most of the indications of this disease, seeing that in its primary action it has, according to my observations, a tendency to excite even in healthy persons great dejected pusillanimity, dull staring (stupid) look, with inordinately opened eyelids, obscuration of vision, coldness and paleness of the face, want of thirst, excessively small rapid pulse, paralytic immobility of the limbs, obstructed swallowing, with shooting pains in the parotid gland, pressive headache, constrictive pains in the abdomen, which become intolerable in any other posture of the body besides bending forwards, rigor and heat of certain parts to the exclusion of others—*e. g.* of the head alone, of the arms alone, &c. If, thought I, this was a case of approaching scarlet fever, as I considered was most probable, the subsequent effects peculiar to this plant—its power to produce synochus, with erysipelatous spots on the skin, sopor, swollen hot face, &c.—could not fail to be extremely appropriate to the symptoms of fully developed scarlatina.

"I, therefore, gave this girl, ten years of age, who was already affected by the first symptoms of scarlet fever, a dose of this medicine ($\frac{1}{432000}$ th part of a grain of the extract, which, according to my subsequent experience, is rather too large a dose). She remained quietly seated all day, without lying down; the heat of her body became but little observable; she drank but little; none of her other symptoms increased that day, and no new ones occurred. She slept pretty quietly during the night, and the following morning, twenty hours after taking the medicine, most of the symptoms had disappeared without any crisis; the sore throat alone persisted, but with diminished severity, until evening, when it too went off. The following day she was lively, ate and played again, and complained of nothing. I now gave her another dose, and she remained perfectly well, whilst two other children of the family fell ill of bad scarlet fever without my knowledge, whom I could only treat according to my general plan detailed above. I gave my convalescent a smaller dose of belladonna every three or four days, and she remained in perfect health. I now earnestly desired to be able, if possible, to preserve the other five children of the family perfectly free from infection. Their removal was impossible, and would have been too late. I reasoned thus: a remedy that is capable of quickly checking a disease in its onset must be its best preventive; and the following occurrence strengthened me in the correctness of this conclusion. Some weeks previously, three children of another family lay ill of a very bad scarlet fever; the eldest daughter alone, who, up to that period, had been taking belladonna internally for an external affection on the joints of her fingers, to my great astonishment, did not catch the fever,

although during the prevalence of other epidemics she had always been the first to take them.

"This circumstance completely confirmed my idea. I now hesitated not to administer to the other five children of this numerous family this divine remedy as a preservative, in very small doses, and as the peculiar action of this plant does not last above three days, I repeated the dose every seventy-two hours, and they all remained perfectly well, without the slightest symptoms throughout the whole course of the epidemic, and amid the most virulent scarlatina emanations from their sisters who lay ill with the disease. In the meantime I was called to attend another family, where the eldest son was ill of scarlet fever. I found him in the height of the fever, and with the eruption on the chest and arms. He was seriously ill, and the time was consequently past to give him the specific prophylactic treatment. But I wished to keep the other three children free from this malignant disease. One of them was nine months, another two years, and the third four years of age. The parents did what I ordered, gave each of the children the requisite quantity of belladonna every three days, and had the happiness to preserve these three children free from the pestilential disease, free from all its symptoms, although they had unrestricted intercourse with their sick brother. And a number of other opportunities presented themselves to me where this specific remedy never failed." (p. 434.)

Such is Hahnemann's account of the mode in which the efficacy of belladonna was first suggested to his own mind. We shall anon revert to the passage we have quoted at such length; meantime, let it be observed, that over and above the prophylactic virtue in scarlatina which Hahnemann claims for belladonna, he also asserts its potency as a specific remedy in the disease itself, modifying its symptoms, removing its "after sufferings," or consequences, "often worse than the disease itself;" and capable, too, of suppressing the fever "in its first germs," when its invasion has already occurred. Further, that, *so far as the prophylaxis of belladonna is concerned*, Hahnemann makes no restriction of the cases of true scarlatina in which the drug may either be inadmissible, or may, in his own experience, have proved useless.¹ On the contrary, we are led

¹ Indeed the *only* restriction made mention of is "in some particular cases, where the original disease has been very violent, and advice has been sought for the *after sufferings* too late . . . that belladonna is no longer of service;" but in this restriction we recognise a very great amount of speciousness; what is it but to say that whenever and wherever the disease baffles the belladonna, it is not to be laid to its charge, but to the mistake of a too-late advice or consultation?

to suppose that, in his experience, no such cases occurred. And this view of his own opinion is rendered more than probably correct, when we find him speaking in his greater work thus :¹—"Et qu'en prenant une dose de belladone aussi faible que possible, on se garantit de la fièvre scarlatine."

One of the earliest notices, if not the first mention of the alleged virtues of belladonna, which appeared after the publication of Hahnemann's own pamphlet, and corroborative of his views, was in 'Hufeland's Journal' for May, 1812, from the pen of Dr. Schenck, having reference to an epidemic which occurred in the department of Hilehenbach, in the Grand Duchy of Berg. It and the other testimonies which follow, both in favour of and against belladonna, are detailed, for the most part, with much precision in the learned work of Bayle.²

In 1812, when Shenck witnessed the effects of belladonna at Hilehenbach, the epidemic had, before his arrival, lasted for three weeks. Eight persons had already died, two of whom were previously healthy and robust young men, and two young women in like condition. Twenty-two were then affected; almost all were children, or young persons below the age of twenty. Of 525 persons who used the belladonna, 522 were unattacked by the disease. The three persons who suffered were a mother and her two children, who were, it is said, peculiarly exposed to the contagion, and had only taken the drug four times. The manner of making and administering the preparation of belladonna adopted by Schenck, to whom it was

¹ 'Organon : Nouvelle Traduction,' par Jourdan, p. 85.

² The title of Schenck's paper, as published in 'Hufeland's Journal,' is "Versuche mit dem Hahnemann'schen Präservatif gegen das Scharlachfieber, von Hrn. Hofrath Schenck."—It is from no desire to find fault, but, on the contrary, with great reluctance, that we must, at the outset of our references to Bayle, express our extreme astonishment and disapprobation of the course Dr. Henderson has adopted. He writes at p. 112 of his work :—"Before advertg to the experiments made in Edinburgh *I shall adduce from an article by M. Bayle,*" &c., &c. Now, it is quite clear that Dr. Henderson has never had recourse to Bayle, but only to Dr. Black's very inaccurate representation of what Bayle has written; for he even copies Black so literally as to transcribe his errors, one of which, miserable as it is, we must beg Dr. Henderson to correct. He follows Dr. Black in referring to the 'Bibliothèque Thérapeutique,' tom. ii, p. 583, *et seq.*, being unaware that there are only 532 pages in the volume.

suggested by Hahnemann himself, is thus recorded, and as this is important we shall quote the French of Bayle :

"M. Hahnemann eut la bonté de me faire parvenir trois grains d'extrait de belladone qu'il avait préparés lui-même, attendu qu'on le confectionne pas dans toutes les pharmacies avec assez de soin pour qu'on puisse compter sur son effet. Il m'envoya en même temps l'instruction suivante : On triture ces trois grains dans un petit mortier, avec une once d'eau distillée qu'on y ajoute peu-à-peu, de manière à ce qu'ils soient exactement dissous. On ajoute à cette solution une autre composée d'une once d'eau distillée et d'une once d'alcool purifié ; on agit le tout, et on laisse déposer. On met une seule goutte de cette liqueur bien claire, dans une bouteille contenant trois onces d'eau distillée et une once d'alcool rectifié : on agite bien le tout. C'est cette liqueur qui sert de préservatif. On en donne aux enfans au-dessous de neuf ans une seule goutte, et aux personnes au-dessus, deux gouttes sur du sucre, tous les quatre jours, de manière à ce qu'on reste deux jours pleins sans en donner. . . . M. Hahnemann me conseilla en même temps de recommander qu'on préservât les enfans de toute commotion vive, ainsi que de lésions externes : mais de ne rien changer d'ailleurs à leur genre de vie. . . . Le 7 février l'on commença l'usage des gouttes, et on les continua pendant quatre semaines." (p. 391.)

In this experience of Schenck, let it be noticed that three individuals who had taken the belladonna four times were attacked, and let the possibility of the epidemic having approached its termination before his observation of it began not be lost sight of. To M. Schenck, M. Rhodius writes as follows :

"Altenkirchen, ce 15 Juillet, 1809.

"L'application de la belladone, comme préservatif de la fièvre scarlatine a eu ici un grand succès. Lorsque je reçus ce moyen, cette dernière régnait déjà fréquemment dans la ville. Les trois enfans de M. l'architecte de Trott étaient dangereusement malades dans la maison de M. le gouverneur de Poelnitz, dont les deux enfans habitaient l'étage au-dessous. On donna aussitôt le préservatif à ceux-ci, et ils ne furent pas atteints. L'enfant de M. Furehel, qui demeurait dans le voisinage, fut préservé par le même moyen. La bonne d'enfant de M. Hertel était très-dangereusement malade ; on donna le préservatif aux deux enfans, et ils n'eurent pas la maladie. Une de mes trois domestiques avait également la fièvre scarlatine : les deux autres, quoique habitant la même chambre que la malade, furent garanties de la contagion par le préservatif. Je pourrais ajouter plusieurs autres faits à ceux que je viens de rapporter : mais je regarde cette énumération comme superflue,

et crois en dire assez, en affirmant que tous ceux qui ont fait usage du préservatif ont échappé à la contagion.

“Signé,

RHODIUS.”

MM. Himly¹ and Hufeland each add a note to M. Sehenek's communication; both speak favourably of belladonna as a prophylactic; the former confirms Sehenek's observations, but adds no new ones.

The experience of the observers just named, whether contained in Sehenek's original paper in 'Hufeland's Journal,'² or as quoted by Bayle, appears to us as scarcely warranting the language which the latter employs in regard to it, and which Dr. Black³ transcribes. Bayle, let it be observed, gives, in the first place, numerous details of individual experience, and then, as is usual with him, adds a condensed view of the evidence in the form of a report. Now, to say the least, the deductions made by Bayle do, in some instances, scarcely tally with the evidence in detail. We have found it the best way to compare the two, and, when possible, to refer to the original paper from which the French physician quotes. The experience of Hufeland and Rhodius is thus given in the report of Bayle—"gave perfect immunity to all the individuals to whom they had administered this substance in several very violent epidemics."⁴ We leave our readers to judge whether or not the statements of Rhodius, in the letter already quoted, authorises the employment of such terms as "gave perfect immunity," and "several very violent epidemics."

M. Masius, professor of medicine at Rostock, furnished a paper to 'Hufeland's Journal' in 1813. His belief in the efficacy of belladonna is founded on his own immunity from scarlet fever, when occupied during two years at Schwerin, along with M. Saehse, in treating cases of a malignant type. He took half a grain of the extract every day on which he visited scarlet-fever patients, in four doses—"Et je fus préservé." At another time when, during winter, scarlatina was prevalent at Rostock,

¹ Himly, who was professor of medicine at Göttingen, was joint editor, with Hufeland, from 1809 to 1814, of the celebrated German journal which bears the name of the latter.

² Mai, 1812.

³ 'Principles and Practice of Homœopathy,' p. 36.

⁴ 'Henderson,' p. 113.

both Masius and his children were preserved by attending to the same precautions. We are rather amused at the manner in which M. Masius is prepared to meet any objections which may be offered to his very paltry evidence. "*J'aime beaucoup,*" he says, "*un scepticisme raisonnable, mais je déteste l'aveugle inérodulité de notre siècle.*" We shall have more to say by-and-by of the "*hazard*" to which M. Masius is aware that some at least may be inclined to ascribe his preservation, and this, evidently, because the narrative favours the author's own purpose.

Gumpert, a physician at Posen, commences a contribution quoted in '*Hufeland's Journal*' for July, 1818, in very much the same way as medical men have written during the last few years; he did not, and they have not, given belladonna before, because they wanted "*faith,*" or "*confidence,*" in the discovery of Hahnemann. Gumpert, who was happy in the possession of four children, of the respective ages of thirteen, eleven, seven, and two years, administered belladonna to each during a period of three months, when scarlet fever prevailed as an epidemic in Posen. At one period the disease existed in the same building as his family lived in, on the floor below his own house, and when in every house in the same street there were persons affected with the disease. The elder children attended a public school. The younger and elder children were alike preserved. Gumpert, at the same period, employed belladonna in upwards of twenty families which he attended, and always with success. The preservation of his patients, even in the hands of this most sanguine doctor, was not, however, universal. One person took the disease during the first week of prophylactic treatment, and another, a child, after taking the belladonna for two weeks. We are left to conclude that these were the only two who contracted the disease after taking the belladonna; but we are directly informed that Gumpert never had a case of scarlatina in which the specific had been employed for more than two weeks. We are, moreover, told, that in one family, consisting of six, to which the second exceptional case belonged, one took the disease, and two a few days thereafter became affected with sore throats and slight fever, without having eruption or desquamation.

In his synopsis of Gumpert's report, just as in that of Himly

already referred to, Bayle does not adhere to the strict letter of the observer. This is perhaps pardonable in Bayle, because within the four corners of his book the statement of Gumpert is given *in extenso*; but what are we to say of Dr. Black, who has evidently never read the statement of Gumpert, either in 'Hufeland's Journal,' or *in extenso*, as given in Bayle;¹ or if he has read either, has contrived to ignore both.²

Gumpert père appears to have been the only one in the same district as his son who employed the belladonna. The latter records his father's success, during some years and in several epidemics, as well as the fact of the confidence of the inhabitants of the district in which he resides being so firm in the belladonna, that the druggists dispensed it without the form of a medical prescription:—"et qu'il y a la même confiance qu'en la vaccine."

Gumpert père further mentions that in no case in which the belladonna has been administered, at the proper time and in the approved manner, has scarlatina declared itself; and that those few cases of the disease which have occurred owing to the belladonna not having been administered during a sufficiently long period, have invariably been of a very mild type. This is no doubt the evidence of Gumpert père; but we profess ourselves entirely at a loss to discover how Bayle, from it, is able to assert that Gumpert, by the timely and judicious use of belladonna, prevented the introduction of scarlatina "*into several villages.*" In this statement Dr. Black of course follows. After this our readers will scarcely require our advice as to the necessity of reference to the original quarter for information regarding the experience of German physicians.

M. Berndt³ observed an epidemic which occurred at Cüstrin in 1817, 1818, and 1819. The following are the results of his observations:

1. Of 195 children daily exposed to contagion, and to whom

¹ Taken from Marc's translation in the 'Biblioth. Méd.,' tom. lxx, p. 114.

² It is not Gumpert who says he preserved eighty individuals, it is Bayle who supposes most gratuitously that each of the twenty families contained four individuals.

³ Berndt's paper in 'Hufeland's Journal' for 1820 is entitled, "Bestätigende Erfahrungen über die Schutzkraft der Belladonna gegen die Ansteckung des Scharlachfiebers, von Dr. Berndt."

I administered the belladonna, there were only 14 who, notwithstanding the remedy, contracted the disease, whilst the other 181 were preserved.

2. The same experiments, made with a solution of three grains of the extract of belladonna, upon a large number of individuals, equally exposed to the influence of contagion, resulted in the preservation of the whole number.

3. The 14 who did suffer had the disease less severely than those who had not been similarly subjected to the influence of belladonna.¹

Muhrbeck,² Dusterberg, Behr, and Méglin are all cited by Bayle as confirming in their own experience the peculiar virtue of belladonna. He quotes on this occasion from Martini's paper in the 'Revue Médicale' for 1824. Muhrbeck speaks in the highest terms of its efficacy, having employed it for about seven years, and always with success. In regard to its action he makes the following remark—that vaccination and belladonna differ in the preservation effected by the former being lasting, that of the latter temporary merely. The experience of Dusterberg is important; we shall, therefore, quote it at length from Bayle.

"Pendant trois épidémies consécutives de scarlatine, j'ai employé la belladone avec un succès tel, que je regarde ce remède prophylactique comme aussi efficace que l'inoculation de la vaccine. En effet lorsqu' en 1820 la fièvre scarlatine menaçait la population de la ville Warbourg, je me décidai à vérifier les expériences connues jusqu' alors sur la vertu prophylactique de la belladone. A cet effet je fis prendre aux enfans confiés a mes soins, 10, 15, ou 20 gouttes, suivant l'âge, d'une solution faite avec trois grains d'extrait de belladone et trois gros d'eau de cannelle. Cette solution ainsi administrée deux fois par jour, et durant plus d'une semaine, eut pour effet que tous les enfans ayant fait usage du préservatif furent préservé de la contagion, malgré leur contacte intime avec les individus atteints de la fièvre scarlatine. Pour mieux faire ressortir l'effet de la belladone et en écarter celui du hasard, j'ai choisi dans chaque famille un enfant, lequel fut excepté de ce mode de traitement. Or, tous les enfans auxquels l'usage du préservatif était

¹ We shall shortly have occasion to refer to the strength of the dose of the remedy employed by Berndt and others.

² The title of Muhrbeck's paper is "Die Schutzkraft der Belladonna gegen das Scharlachfieber." The same paper, with the author's name changed into Muhskbech, is rendered into French in the 'Nouveau Journal de Médecine,' tom. xii.

demeuré interdit, furent attaqués de la contagion. Plusieurs enfans, à la vérité, n'ayant usé du préservatif que pendant quatre ou cinq jours furent atteints également de la scarlatine; cependant, presque chez tous, la maladie fut si peu grave, que l'on ne s'aperçut de sa présence que lors de la desquamation." (p. 404.)

The following is the experience of Behr, at Bernbourg, during an epidemic which prevailed in that town in 1820, and which, though at first not of a formidable character, speedily acquired a more fatal aspect. Among forty-seven individuals, including children and adults, to whom the belladonna was given, only six were attacked by the disease, and in nearly all the six the disease was of a benign character.¹ After concluding his account of the experience of Behr, M. Bayle refers to that of Méglin,² at Colmar, who found, during an epidemic which continued during the autumn and winter of 1820, and the following spring, and which at times (*assez souvent*) assumed a severe and fatal character, that all those who, before the invasion of the epidemic, had taken the specific, were preserved.

¹ The paper of Behr is one of the most interesting, if not the most so, of all those published in 'Hufeland's Journal' upon this subject; it contains a table, giving the name, age, date of the commencement of the disease, &c., in forty-seven cases.—'Hufeland's Journal,' Stück ii, August, 1823.

In Dr. Black's account of this physician's experience, he says, the six alluded to above "were attacked in an almost insensible manner." This is certainly not Behr's own account, as our readers may satisfy themselves by referring to the paper of Martini in the 'Revue Médicale' for 1824. We confess to feeling a very strong dislike to the frequent discrepancies which we find between the different writers' own accounts—which surely are the accurate ones—and those furnished by Dr. Black; and as Dr. Henderson has rested satisfied by always referring to the latter, and has, in a footnote to p. 115 of his own work, recommended the English reader to the same source, we take this other opportunity of directing him from so unworthy a quarter. It may be, and in most instances is, very true that the important facts in regard to the question at issue, as given by the German writers, are fairly enough rendered in both Dr. Black's and Dr. Henderson's pages; but we have a right to expect more than that; and from those who ask us to believe experiences in which they put faith, we require that these experiences should be by them truthfully and accurately presented to us, otherwise let them furnish their readers with a simple reference to the authorities, to which, it appears to us, Dr. Black has never once turned for himself.

² See 'Nouveau Journal de Médecine,' &c., Paris, for November, 1821, under the head Variétés, the passage which M. Bayle quotes, and which we have rendered above.

M. Méglin administered the root of the belladonna in powder, with a little sugar, according to the following prescription: R. Pulveris radiceis belladonnæ, gr. ij, Sacchari albi, ʒij, Misce: et divide in 60 partes æquales. From one to five doses to be taken, according to the age of the patient, and to be repeated four times daily.

M. Koehler, physician of Cercle, records the following:—A child, one of seven, was attacked with scarlet fever well-marked; the other six took a very small dose of belladonna, and were preserved, though remaining in the same apartment as the sick child.

Dr. Beeke, among other experiments in favour of the peculiar virtues possessed by belladonna, mentions that the physician of the district, Wolf, in Silesia, encountered an epidemic of scarlatina in the village of Staedtel; 120 persons were already affected; the specific was administered, and thereafter there occurred thirty-nine mild cases. In two other villages, where 132 individuals made use of the same extract, only six were attacked. In 1820, at Siegen, the son of a merchant was attacked with scarlet fever. His aunt, who had paid him a hurried visit, was also seized. She was the mother of three young children; they took the belladonna, and, though they were always beside their mother, they were preserved. Dr. Bénédix employed belladonna with success against the contagion of a malignant fever in the island of Rugen. His paper, a short and interesting one, follows Behr's in 'Hufeland's Journal' for August, 1823: and after it come two notices, one by Dr. Wesener, of Dülmen, in Westphalia, the other by Dr. Zeuch, practising in the Tyrol. The former appears to have thought little of the power of belladonna till he administered it to his own children, and finding them preserved from the contagion of prevailing scarlatina, he changed his views. The latter, in the military hospital for children, had the following experience. Twenty-three children out of eighty-four became affected; to the remaining sixty-one belladonna was administered during twenty consecutive days; only one of the sixty-one took scarlatina, although the disease continued to prevail in the neighbourhood of the hospital. Dr. Suttinger reports that before belladonna was administered several persons had died during an epidemic of scarlatina which occurred at Miaskowo, but

that after recourse was had to belladonna no other case happened.

Hufeland, the learned editor, commences the November number of his journal for the year 1825 thus :

“Es ist mir grosse Freude, die schützende Kraft der Belladonna gegen das Scharlachfieber durch neue Erfahrungen zu bestätigen. Es sind nun fünf (dreizehn ?) Jahre vergangen, dass in diesem Journal die erste Aufforderung zu der Anwendung dieses Schutzmittels erging, und jedes Jahr hat seitdem eine Menge günstige Erfahrungen geliefert. Ich selbst habe das Mittel mehrmals in meiner Praxis angewendet, und nie gesehen, dass eines von denen, welche dasselbe gehörig gebraucht hatten, angesteckt worden wäre.”¹

Having passed this panegyric on belladonna, the observations made in the Frederick Institution at Berlin, to which he is physician, by Kunzmann (whom Bayle calls Kunstmann, and of course Black does so also), are detailed. He had remained doubtful as to the efficacy of the remedy till, in January, 1825, he became, from his experience in the institution already referred to, satisfied as to the protective virtue of belladonna. In it there were about seventy children of both sexes, from four to fourteen years of age. On the 25th December, 1824, scarlatina manifested itself in the person of the director's son, and three days later two young girls, one of four, the other of seven years, became affected. The sick children were separated, but, adds Kunzmann, it was impossible to cause a complete isolation. The sound children then received a mixture, composed of two grains of the extract of belladonna in an ounce of distilled cinnamon water, of which each child took as many drops twice daily as he or she had years. From that time to the 23rd of January, a period of four weeks, no case presented itself, but on that day a little boy of ten became affected, but only very slightly, proving that the contagion still existed in the house. A second son, however, of the director of the institution, who had not taken the mixture, suffered a severe attack of the

¹ “It is a great pleasure to me to be able to confirm, by new observations, the prophylactic power of belladonna in scarlet fever. It is now five (thirteen ?) years since, in this journal, the first mention was made of the employment of this preventive, and each year since that time has brought with it a large number of corroborative facts. . . . In my own practice I have on several occasions used this remedy, and I have never seen one of those who used it in the proper manner affected by the disease.”

disease. During six weeks the remedy was persevered in, and no eases occurred. The table furnished by Gelneeki, of Stettin (with whose name also Bayle, and Black after him, take great liberties, manufacturing it into Geneki), succeeds Kunzmann's report, and is a remarkably interesting one. His experience was obtained in Glasgow. There were in all ninety-four children. Of these, seventy-six appeared to be preserved from the contagion by the use of the belladonna, while fifteen, who had not employed the remedy, became affected with the disease, three who had employed the belladonna took scarlet fever, and two of the three died. Of the fifteen who took the disease without having made use of the prophylactic, four died.¹

Maizier,² district physician of Burg, made use of belladonna in the village of Nigripp, and not one of the 170 children to whom he administered it became affected with scarlatina. The treatment was continued for fourteen days, and then the epidemic disappeared, though in the neighbouring village of Detershagen, where no belladonna had been employed, it continued to prevail, and some children died. This physician had previously obtained similar results with belladonna in 1821: an epidemic of a fatal character prevailed at the village of Grabow, and its cessation followed the use of the prophylactic. In the districts of Riesel and Ziegelsdorf, where some children had been already seized, the belladonna was employed, and no other case occurred. Also in Burg, the place of his own residence, among from sixty to seventy children, there were only three or four who became affected with scarlet fever (when epidemic) after the use of the specific. Hufeland mentions Dr. Wiedemann, of Wolmirstedt, as bearing like testimony.

¹ The inexcusable blunder which both Bayle and Dr. Black, in copying him, have committed, in quoting the testimony of Gelneeki, is also observable in the table which Bayle has prepared, but which, from the inaccuracy we allude to, is rendered useless. Dr. Black, in a footnote to p. 39 of his book, says, "there is an error here as to the number, also in the tabular list;" but he had not the ingenuity to correct the mistake into which Bayle had fallen, although in Bayle's own work the opportunity for so doing was afforded him.

² 'Hufeland's Journal,' November, 1825. For his account of Maizier's experience Bayle (and it is singularly inaccurate) quotes from a French journal. 'Journ. des Prog.,' tome i, p. 242.

Dr. Randham,¹ in the Orphan Hospital at Langendorf, on the occurrence of two cases of scarlatina, gave the belladonna to the 160 remaining, from February (when the two cases presented themselves), so long as the contagion lasted. On the 21st of April, the disease had attacked none of the other orphans, not even two who shared the same apartment with the two previously sick children. Velsen,² physician at Clèves, reports that of 247 persons who used the belladonna, thirteen only contracted the disease, of whom four were children who had taken the remedy during several weeks, but not with regularity, one child who had taken it regularly during fourteen days, another during eight days, and the rest during forty-eight hours. In all the cases the disease was mild, milder than with those who had not taken the medicine. Among the facts mentioned by Velsen is the following:—A man, the father of four children, who had visited but only for a few seconds a friend labouring under scarlet fever, was seized, some days thereafter, with the same disease, and in a violent manner; his wife and children, the youngest of whom was only three weeks, and the oldest four years, took with great regularity the extract of belladonna, and, although day and night were passed with the sick husband and father, and in a small and badly-ventilated chamber, none took the disease. M. Velsen adds: “Est ce là l’effet du hasard, ou le résultat de l’emploi de la belladone?”³

Such are some—indeed, nearly all—of the testimonies borne by foreign—and more particularly by German—physicians to the prophylactic virtue of belladonna. We now proceed to consider the facts which have been advanced in this country; here we find the evidence neither so extensive nor on so large a scale. The following account is given by Messrs. Taynton and Williams, gentlemen practising at Bromley, in Kent, in 1829:⁴

¹ ‘Hufeland’s Journal,’ 1825.

² ‘Journ. Complémentaire du Dict. des Sciences Méd.,’ tome xxviii, p. 370.

³ Did our space permit we might have quoted Wagner’s report of the epidemic at Schlieben, of Dr. Peters at Leopoldshagen, of Dr. Reuscher at Stendal, and Dr. Cohen. For these we beg to refer the reader to ‘Hufeland’s Journal,’ 1825, also to the ‘Gazette de Santó’ for the same year for the statement of M. Lemercier. These are all alike favorable to the theory of the prophylactic power of belladonna.

⁴ The ‘London Medical Gazette,’ vol. iv, p. 297.

"During the months of April and May the scarlet fever was very prevalent in this town and neighbourhood, and in many cases it proved fatal. Our attention was called by a friend to a notice in the 'Lancet' of the 2nd of May, "On the Prophylactic powers of Belladonna against Scarlet Fever," by M. Hufeland. We were at that time attending in a boarding-school where the disease had attacked twelve of the boys, many of whom had been most dangerously ill, but none had died. There still remained several boys (perhaps twenty) who had not taken the infection; also four young children of the master's, and several servants. We immediately commenced the use of the belladonna, in the exact manner and dose advised by Hufeland. Only six or seven persons in the house took the disease afterwards, and in every instance it assumed the mildest form.

"In another school we were called to visit a child about two years old, who had been attacked the evening before. The disease was of the most malignant character, and the child died on the following morning, the third day from the attack. The house is a very small one. There were in it three other young gentlemen and five boarders, and a servant-girl. The belladonna was faithfully administered, and not one individual took the disease. We will not offer any conjecture on the *modus operandi* of the belladonna, or whether it did or did not prevent the other members of these families from taking the disease. The facts are stated exactly as they occurred, and we entreat our professional brethren to make trial of the belladonna whenever a favorable opportunity occurs."

The following is the result of Dr. Black's² experience :

"Belladonna was administered to eleven children who had never had scarlet fever, and who were living in a house with two cases of scarlet fever, the one of them attended with sloughing sore throat, and in intercourse with these cases: all escaped, even one who was sleeping in the same bed with one of the patients. In another instance, we gave belladonna to four children, none of whom had the fever, and were directly exposed to the contagion; three escaped; one took the fever, but so slightly that we were inclined to regard the symptoms as those of belladonna.

¹ The following are the conclusions of M. Hufeland, contained in the paper which Messrs. Taynton and Williams refer to :

I. The proper use of belladonna has, in most cases, prevented infection, even in those instances where, by the continual intercourse with patients labouring under scarlet fever, the predisposition towards it was greatly increased.

II. Numerous observations have shown that, by the general use of belladonna, epidemics of scarlet fever have actually been arrested.

III. In those few instances where the use of belladonna was insufficient to prevent infection, the disease has been invariably slight.

IV. There are exceptions to the above three points, but their number is extremely small.—'Lancet,' May 2nd, 1829.

² 'British Journal of Homœopathy,' vol. i.

In another instance we administered the remedy to four children and an adult, who were living in the same house with two cases of scarlet fever. The adult and two children were seized with the fever; two had only taken the remedy for two days, and one for three days; the other two children escaped. The three cases were much milder than the two cases in which no belladonna had been given as a preservative. Out of the twenty cases, we observed the remedy produce headache, with increase of pulse, in one child; in another, there was slight redness of the skin, which lasted for eight hours, and unattended with fever."

Dr. Patrick Newbigging¹ writes as follows :

"Scarlet fever having prevailed in John Watson's Institution to so considerable an extent, and the cases having occurred in close succession, notwithstanding a system of separation as complete as was possible amongst inmates residing under the same roof, I felt desirous to try the effect of belladonna as a prophylactic against the disease. It was an opportunity such as rarely occurs for the investigation of the alleged virtue of this drug on a large scale. Having ascertained the number of children unaffected with scarlet fever, or who were uncertain as to ever having had it—making, in all, sixty-nine—I directed that belladonna should be administered to them, in the proportion of one-sixth to one-fourth of a grain twice a day, according to the age of each child, the first dose being given before breakfast, and the last dose at bedtime. This plan was adopted on the 16th of October. Three new cases occurred between that and the 20th. After that date no child was affected, nor has there been any instance of scarlet fever since that period in the institution. . . . I should now consider it my duty to lose no time in making use of this medicine on the first appearance of this disease, and I would strongly recommend the same plan of practice to those of the profession who are connected with similar educational institutions, with the view, not merely of attempting to ward off a malady so uncertain in its progress, and occasionally so fatal in its termination, but also with the object of accumulating information on a point of such paramount importance to the public health. The opinion I have adopted on this point has been greatly strengthened by a similarly beneficial result produced some time afterwards in another case. I was requested to visit a young gentleman at a large educational seminary. I found him labouring under scarlet fever, with profuse eruption, an aphthous and very painful condition of the throat, accompanied by all the usual symptoms exhibited in the acute stage of a smart attack of this disease. I caused my patient to be removed, a few hours after first seeing him, to the house of a relative, and placed his brother, who continued to reside in the seminary, upon belladonna. This treatment was adopted on the other members of the family, consisting of nineteen, who had not previously been affected with scarlet fever. No other case occurred."

We might easily multiply the quotation of experiences such

¹ 'Monthly Journal of Medical Science,' September, 1849.

as the three now adduced. We believe such a procedure, however, to be unnecessary, the facts in favour of the employment of belladonna being as strongly elicited in these three as in any other recent accounts we have met with.

Our readers, after having followed us in the production of these various facts and opinions of authors in favour of the prophylactic action of belladonna, will naturally expect us to advance the facts and opinions of a contrary bearing. And if we now limit ourselves to the quotation of a few of the former, and to a mere glance at the general nature of the latter, it must not be supposed either that the facts are wanting or are even limited in number, or that silence has prevailed over the expression of opposite views. Such is certainly not the case; there exist, if not so many facts as in favour of the prophylactic action of belladonna, at least stronger, and altogether more reliable ones, on the inefficiency of its employment; while the expression of opinion in regard to its inefficiency—not always formed on the justest grounds, we allow—have undoubtedly been neither few nor uncertainly declared. Among German writers who have adopted this view is Lehmann, the staff-physician of the garrison at Torgau. Dr. Black makes it appear as if Bayle objected to the evidence of Lehmann, on the score of its being “supported by no facts.” Such is not the case. Bayle never could have made such a mistake with the paper of Lehmann before him, and when he writes,—“Nous ne pouvons apprécier à leur juste valeur l’opinion de ces auteurs, parcequ’elle n’est appuyée d’aucun fait, et que la maladie n’est point décrite,” Bayle means this to apply to the opinions advanced by Raminski¹ and Teuffel,² as quoted by Barth. Any reader, however, of either Black or Henderson, will come to the conclusion, that by Bayle the evidence of Lehmann was held in the same estimation as that of the two other observers just named—affording another proof of the danger of trusting to second-hand reading, and of the propriety of consulting in all cases, where possible, the original statements of every author. Had Dr. Black not rested satisfied by quoting the

¹ Raminski is mentioned by Barth to have lost his own son, and to have afforded many proofs of the augmentation of the disease after the employment of belladonna.

² Teuffel’s observations, says Bayle, are to the like effect.

mere *résumé* of Bayle, he would not have fallen into this error; for at page 417 of his same volume, Bayle devotes a paragraph of nearly half a page in length to Lehmann's observations, entitling them, 'Observations du Docteur Lehmann: ¹ Epidémie de Scarlatine dans laquelle la Belladone ne prévint pas la Maladie.' The title of the paper itself, in 'Rust's Magazin' is different; it is given below.² What Bayle says of Lehmann's experience is in every respect fair, and when he expresses his opinion in the following words, "Il n'a jamais pu parvenir à empêcher la contagion chez eux qui y étaient disposés, ni à modérer la gravité de la maladie chez eux qui déjà en étaient atteints" (p. 417), he says *no more than* Lehmann's accurately observed and precisely stated facts required.

Now this paper of Lehmann's is both a very interesting and a very important one. His experience was large; his attention to the mode of preparation and the manner of administering the belladonna were alike exact—"en le donnant," Bayle himself says, "suivant toutes les règles indiquées par ceux qui ont préconisé ce moyen"—and lastly, his memoir has the advantage of almost all others which we have perused, while it is inferior to none in exhibiting the precision of its author's observations. We shall quote four of these:—

1. In a family consisting of three boys, the eldest was attacked with scarlet fever. The two others were immediately removed from the sick boy, and were confined to the floor of the house below that on which his room was. They got, at the same time, every morning and evening, the belladonna solution. After this boy's recovery, and at the end of one month from the first appearance of the disease, he was restored to the society of his two brothers. Four months later the youngest brother was seized with the disease in a severe form; he recovered, and then the third (in respect of years, the second) brother, who remained on this occasion in proximity to the patient, but at the same time took the belladonna regularly, contracted the disease on the tenth day, and fell a victim to it.

¹ 'Magazin für die gesammte Heilkunde,' Herausgegeben Von Dr. Johann. 'Nep. Rust,' vol. xxi, 1826 (at p. 42).

² Die Unwirksamkeit der Belladonna als Schutzmittel gegen das Scharlachfieber, nebst einem Impfungsversuche dieser Krankheit. Von Dr. Lehmann.

2. In a family consisting of five brothers and sisters, a boy of five years was first attacked with scarlet fever. To the other four the belladonna was immediately given. After eight days a little girl of four years old was seized, and on the third day of the disease died. The following day a sister of three years of age took the fever mildly, and recovered; another sister, of eleven years, was almost immediately afterwards affected, and on the fourth day of her illness died. The eldest brother, long a sufferer from bad health, and particularly from a chronic affection of the heart, remained free from the disease. It is of importance to know that the four patients together occupied a small and extremely damp room, on the ground floor; and this, indeed, was accepted as the probable cause of the early deaths.

3. A boy of five years, an only son, contracted scarlet fever after having uninterruptedly, during several months, taken belladonna. The fever assumed a cerebral character, and on the fourth day the little patient died.

4. In a family of four children, the eldest (who was five years) became affected with scarlet fever. The remaining three were immediately put on the belladonna; two of these, on the twenty-first day of the employment of the drug, became affected with the disease in a severer form than the first child, who had taken no belladonna.

Along with other facts of a like nature, Lehmann mentions that, in his own experience, whole families (one in particular, consisting of seven children), altogether escaped the disease, though epidemic in the place where they resided.

At Stralsund, writes Barth (quoted by Bayle, p. 419), Dr. Mierendorf observed that the children to whom belladonna was administered became more seriously affected, and died in much greater proportion than those for whom the drug was not prescribed. Dr. Schmidt, writes the same authority, lost two children who had taken the so-called prophylactic. Of 100 children so treated, fifteen became affected with scarlet fever, and one died.

Dr. Raminski, who lost his own son, had so many proofs of the exacerbation of the disease during the employment of the belladonna, as to make him altogether doubt its efficacy as a remedy.

Mr. Benjamin Bell, in the course of an article on "Scarlet Fever as it appeared in George Watson's Hospital in the spring of 1851,"¹ writes as follows :

"Conceiving that no means for arresting the disease ought to be neglected, and that a favorable opportunity now offered itself for testing the alleged prophylactic virtue of belladonna, I determined to give it a full and fair trial.

"Accordingly, on the 21st of February, upon the appearance of a second case of scarlet fever, the fifth part of a grain of the extract was given, morning and evening, to each of the boys. The dose was found, in a few days, to be too large, from the dilated state of the pupil and impaired vision which it occasioned in several instances. It was accordingly diminished, and then administered without interruption, to all the boys, who continued well until the 7th day of June, a full month after the last case of scarlet fever had occurred. It is important to remark that the second case already referred to had been in the sick-room, separated from the rest of the boys, for more than a week before the symptoms of scarlet fever appeared, and that no additional case occurred until the 21st of March, an entire month after the belladonna had been regularly administered. There was thus ample time for the manifestation of its virtue as a prophylactic; but the subsequent occurrence of so many cases seems to throw considerable dubiety over the existence of any such power. No experience of a merely negative character can be regarded as of much weight, when contrasted with this positive experience now detailed. It is by no means unusual to meet with only two or three cases of scarlet fever in a large assemblage of children without the belladonna having been used at all; and therefore we are not called upon to give it the credit of securing a similar exemption in cases where it has been administered; but surely the occurrence of twenty-three cases out of fifty-four boys, who might be legitimately reckoned liable to the disease, is an overwhelming evidence on the opposite side."

In reference to the prophylactic action of belladonna, we find Dr. Elb, a homœopathic practitioner at Dresden, writing as follows :²

"I must add, that in general I did not find the prophylactic power of belladonna by any means so generally borne out, although cases have come before me, in which I gave belladonna as a preventive, and the children to whom I administered it remained free from scarlet fever. But just as often have I found that children have been attacked by it, notwithstanding the use of belladonna for several weeks, and that this long previous use of the belladonna had not even the power of diminishing the violence of the disease."

¹ 'Monthly Journal,' August, 1851.

² See 'British Journal of Homœopathy, 1849, vol. vii, p. 33.

The interesting experiments of Dr. Balfour, conducted at the Royal Military Asylum at Chelsea, are thus alluded by Dr. West :¹

"I cannot do better than relate the experiment in the words in which Dr. Balfour was good enough to communicate it to me. Scarlet fever having broken out in the visitation, Dr. Balfour determined to try the virtues of belladonna. 'There were,' he says, '151 boys, of whom I had tolerably satisfactory evidence that they had not had scarlatina. I divided them into two sections, taking them alternately from the list, to prevent the imputation of selection. To the first section (76) I gave belladonna; to the second (75) I gave none; the result was, that *two* in each section were attacked by the disease. The numbers are too small to justify deductions as to the prophylactic power of belladonna; but the observation is good, because it shows how apt we are to be misled by imperfect observation. Had I given the remedy to all the boys, I should probably have attributed to it the cessation of the epidemic.' To these remarks," continues Dr. West, "I need add nothing. They convey a most important lesson, but one which, I fear, we are all too apt to forget in the study and in the practice of medicine" (p. 600)

Dr. Andrew Wood's experience in Heriot's Hospital is thus mentioned by Dr. Simpson :

"In Heriot's Hospital my friend, Dr. Andrew Wood, placed half of the boys in each ward, or sleeping division, on belladonna, and left the other half without any such protection. The disease did not spread much, but at least as many of those using the belladonna as of those not using it were attacked; and the only fatal case out of forty which occurred during that epidemic was that of a boy who had been using belladonna in doses of one eighth of a grain twice a day for three weeks previously to his being attacked."¹

¹ 'Lectures on the Diseases of Infancy and Childhood,' 3rd edition, 1854.

² Through the kindness of Dr. Wood and of Dr. Simpson we are enabled to give the experience of the former a little more in detail. The plan Dr. Wood adopted was an excellent one, and the result of his experiments, taken in connection with Dr. Balfour's and Mr. Bell's (somewhat differently performed), to our mind appears conclusive: "The plan that I proposed to myself," says Dr. Wood, "was this, viz. whenever scarlatina appeared in any particular ward, and not till then, I immediately made inquiry, and having ascertained the boys who had previously had the fever these I left out of the question. I then divided the remainder into two nearly equal sections: to one I gave one eighth of a grain of belladonna twice a day, to the other no belladonna was given. This experiment was continued for several weeks, and the reason why it was then discontinued was simply this, that a fatal case occurred in the person of a boy (J. B) who had been taking the

In drawing this article to a close, we have to consider, first, whether or not the prophylactic action of belladonna against scarlatina, as claimed, promulgated, and practised by Hahnemann and his followers, has stood the test of experience, and is now to be regarded as a reality; and second, whether, in regard to the employment of belladonna for a like purpose, in larger doses than those recommended by the former, experience and observation lead us to embrace the practice as a real boon to humanity, or to abandon it as inefficient and absurd.

At the outset, let us exactly understand what Hahnemann did, and his followers do now, claim for belladonna as a prophylactic, and what was the manner of its exhibition which he advised and required. This inquiry is not unnecessary, when we consider that in the numerous instances of failure of the belladonna reported to Hahnemann himself, he invariably attributed the want of success to the prophylactic having been employed in cases of a fever different from scarlet fever;¹ or the *Miliare pourprée*, which was, according to Barth, imported

belladonna for nearly four weeks. Taking alarm I resolved to discontinue the experiment." The following is a brief analysis of the trial:

First ward—containing 11 boys. Case occurred April 17th. 3 already had scarlatina; 5 boys got belladonna; 2 got no belladonna. One of the 5 took scarlatina June 2nd and died on the 7th. No other case.

Eighth ward—containing 20 boys. Case occurred April 25th. 7 already had scarlatina; 5 got belladonna; 3 got no belladonna. No subsequent case.

Fourth ward—containing 25 boys. Case occurred May 9th. 4 already had scarlatina; belladonna given to 10; no belladonna to 10. On 19th May, J. G—, who had accidentally slept in the same room as a boy who had scarlet fever, and had been taking the belladonna since the 28th April became affected with the disease in a moderately severe form; he recovered. On 4th June a boy who had taken no belladonna contracted the disease in a very mild form. No subsequent case.

Fifth ward—containing 18 boys. Case occurred May 23rd. Had had the disease, 4; took belladonna, 6; took no belladonna, 7. No subsequent case of fever.

Seventh ward—containing 36 boys. Case occurred May 28th. Had had scarlet fever, 6; took belladonna, 18; took no belladonna, 11. No subsequent case.

¹ Hahnemann also speaks of the introduction of this *Fièvre Miliare Pourprée*—(or, in German, *Rothe Friesel*, *Purpurfriesel*, *Roodvonk*)—purple rash—as having been introduced from Belgium in 1801. See '*Reine Arzneimittellehre*,' von S. Hahnemann, vol. i, p. 15.

from Holland, in the month of January, 1801. It appears to us that in all probability the limitation of the use of the drug to the cases of scarlet fever, as described by Sydenham¹ and Plenciz,² was an after-thought, and that, notwithstanding the allusion made by Hahnemann to the similarity borne by the epidemic of scarlatina at Königsutter to the disease described by Plenciz; for, unquestionably, in the whole length of the article "On Scarlatina," as translated by Dr. Dudgeon, there does not occur a single expression whereby we are to understand that his proposal of belladonna as a prophylactic, or as a remedy strictly so called, was to be confined to cases of the same nature as those which occurred in that epidemic.³ Were any further proof of this (than the absence of any restriction) required, we think it supplied in the fact of Hahnemann, in his first publication, expressing his belief "that a similar employment of belladonna would also preserve from measles."⁴ Now, no one will pretend to urge that a closer

¹ 'Processus Integri' (Sydenham edition of works), vol. ii, p. 242.

² 'Tractatus de Scarlatinâ,' Autore Marco Antonio Plenciz, sectio ii. Vienna, 1772.

³ Dr. Henderson argues that Hahnemann has the advantage of Jenner in not claiming universality of exemption from scarlatina after the use of belladonna, as he says Jenner did after vaccination, from smallpox. To us it appears that if Hahnemann had adhered to his original opinion—from which he at the time allowed no exception—he would have been both more honest and more entitled to our attention. We can, however, see no parallelism either between the discoveries of Jenner and Hahnemann, or between their subsequent histories.

⁴ Hahnemann, in adverting to the subject of the treatment of scarlet fever as recommended in the works of various authors, makes this singular admission: "Here we often see the *ne plus ultra* of the grossest empiricism; for each single symptom a particular remedy in the motley, mixed, and repeated prescriptions; a sight that cannot fail to inspire the unprejudiced observer with feelings at once of pity and indignation." We think "the cap fits" most exactly here, and even pinches, though Hahnemann, with strange perversion of observation, does not appear to feel it. The proposal and employment of belladonna in scarlet fever is as apt an illustration as could be imagined of the fitting remedy to symptom. Belladonna produces a scarlet rash; therefore, concludes Hahnemann, it will cure scarlatina, or is homœopathic to it. But scarlet rash is not scarlet fever, it is only a symptom of it; and if we were to give belladonna as often and as long, and in whatever doses we chose, we might kill our patients, but we never could contrive to give them scarlet fever. The question of the power of belladonna to produce the rash which is so universally believed to

resemblance subsists between measles and scarlatina than between that disease and the *miliaire pourprée*, which, if it were really not a variety of scarlatina, must have very closely approached it in character, before so many observant physicians could have been deceived. In our opinion, then, the plea of want of success on the ground of dissimilar diseases being treated under the belief that they were alike examples of scarlatina epidemics does not hold good; for, first, there is no proof of the diseases treated by Raminski, Teuffel, and other physicians, not having been a true scarlatina; and second, Hahnemann himself did not confine the virtues of belladonna to scarlatina, but extended them to a disease whose characters are by a still longer way removed from it than the *miliaire pourprée*—namely, measles.

It has been contended, and this argument is referred to by Professor Henderson, that in instances of failure another drug than belladonna, dulcamara for example, may have been used. Now, we beg to submit that if this idea is allowed to have any weight, it must be permitted, in all justice, to affect both sides of the question; for we know no reason, and no experience, to justify such reason—why Hahnemann and his followers should have always hit upon the proper plant, and those who opposed his views have seldom or never done so. If Dr. Henderson insists upon this point, we are quite ready to allow that some physicians, who employed dulcamara, or some other member of the Solanaceæ, instead of belladonna, have failed (though not in consequence) to protect their patients from scarlet fever; but then, we must contend that certain other physicians, who administered these drugs instead of belladonna, have succeeded in the desire to have their patients preserved from the disease though not in consequence. Let it, however, be remembered that belladonna possesses a singular property—a property

follow its continual administration itself requires revision. For our own part we can say that, after giving belladonna for a long time, in more cases than one we have failed, though careful and repeated in our examination, ever to discern it. We do not mean to doubt the production of what may be called *spots* in some cases, but we altogether disbelieve the fact of even these following in any large number of instances. Schultz has justly remarked that similarity of symptoms, not of diseases, lies at the base of all the therapeutic proceedings of Hahnemann and his followers—a pity they do not see it.

almost peculiar to itself—and then we think it will be granted, that any physician entering on a careful investigation into its properties, by means of a given portion of its extract, will first establish the power of that individual specimen to dilate the pupil in the peculiarly marked manner which belladonna does.

Some singular discrepancies exist in regard to the frequency of the administration of belladonna as recommended by Hahnemann; for example, Barth, as cited by Bayle, says that “*tous les six à sept jours*” was the interval at which he advised the dose to be administered. Jahr¹ also says, as expressing the views of Hahnemann, “To this effect the smallest dose of belladonna ought to be² given every six or seven days.” On the other hand, in his communication to Dr. Schenck, already quoted, Hahnemann says distinctly, on every fourth day the belladonna solution should be taken; and in his own pamphlet, as translated by Dr. Dudgeon,³ he condescends to a greater particularity, and orders a dose to be given every seventy-two hours. It is not for us to reconcile these discrepancies, believing, as we do, that it certainly makes very little difference whether the $\frac{1}{432000}$ th part of a grain of belladonna⁴ be taken every seventy-two hours or every seven days. Some of his followers, moreover, take what we should have thought to be unpardonable liberties with Hahnemann’s directions; of these we need only cite Dr. Black, who has the effrontery to double the Hahnemannic dose (making it thus $\frac{1}{216000}$ th part of a grain), and to make the interval of its exhibition from ten to fourteen days.⁵ Surely when Hahnemann’s own followers, acting on their own responsibility, double the strength of his remedial measures, and fix their own time for their administration, Dr. Henderson⁶ need not be so very indignant at Mr.

¹ Jahr’s ‘New Manual of Homœopathic Practice.’ Edited by A. G. Hull, M.D. Article, Belladonna, in ‘Symptomatology,’ p. 161.

² Die von mir gefundene Schutzkraft der Belladonne in der Kleinsten Gabe aller, 6, 7, Tage gereicht, &c., &c., are Hahnemann’s own words.

³ Op. cit., p. 438.

⁴ And this (for a preventive object) as a dose for a child of ten years is, according to Hahnemann’s own experience, too large.

⁵ Dr. Black in the ‘Homœopathic Journal,’ vol. i, p. 138.

⁶ I am persuaded, says Dr. Henderson, Mr. Bell will pardon me for asking if he made himself acquainted, before he began his researches, with Hahnemann’s instructions as to the proper dose, and the interval that should

Bell likewise choosing the amount of his dose, and for himself determining when and how often to employ it.

But leaving the adherents of Hahnemann's system to reconcile these differences, we come to a point in the argument concerning both him and them, which we shall take the liberty of settling for ourselves. Hahnemann distinctly says (as we have already quoted) that the peculiar action of belladonna *does not last above three days*, and the repetition of the dose of the prophylactic at the end of every seventy-two hours is, therefore, strongly insisted upon, and (though he has mentioned longer intervals) appears always to have been acted upon. He never allows seventy-two hours to pass without the administration of a dose, though, if the epidemic of the disease be very violent, he counsels the safety, if children could bear it, of giving the second dose twenty-four hours after the first, the third dose thirty-six hours after the second, and the fourth forty-eight hours after the third; thereafter to let the subsequent doses be taken every seventy-two hours until the end, in order that the system may not at first be taken by surprise by the miasm.¹ Now, if we inquire the reason of the period of interval of the doses being at all events limited to seventy-two hours—never allowed to exceed that period—we are met by the (homœopathically speaking) very sensible answer, that “the peculiar action of this plant does not last above three days.” Now, if that was Hahnemann's opinion—and these are his *ipsissima verba*—we should like to know what believer in the homœopathic action of medicines has any right to dispute it? Besides, Hahnemann first proposed belladonna as a prophylactic in scarlatina, and—to use the argument adopted by Professor Henderson, in addressing himself to Mr. Bell's experience—therefore try his way of it, and adopt his theory regarding it, else leave it altogether alone. But we do not require to do this; all the followers of Hahnemann acknowledge that the period of the duration of the effects of the “divine” remedy

elapse between the successive repetitions of it? If he did not, why try the medicine at all, since there was no other discoverer of the alleged preventive power of belladonna than that same Hahnemann, who also says that the dose ought to be very small, and ought not to be repeated above once in two or three days? We should prefer Dr. Blak's answering this question.

¹ See Dr. Dudgeon's translation, p. 439.

never exceed seventy-two hours. "Vis per 56 horas ad minimum, per 72 horas ut plurimum durat," says the founder of the homœopathic school; and it makes very little matter if Hahnemann's ignoble editor, Dr. Quin, daring to attempt to improve upon what he has said and done, adds, in a note, "Aliquando belladonna ad diem vigesimum primum et ultra (most convenient) vires retinet;¹ or that Jahr still further improves upon both by saying that the duration of the action of belladonna extends "from one day to eighteen months."² If, then, Hahnemann's idea be correct, that the action of belladonna as a prophylactic against scarlatina is exerted only, at the farthest, for a period short of seventy-two hours, we are fairly entitled to conclude that all these instances of preservation from the disease in which the drug was exhibited at intervals exceeding that space of time, and which have been attributed to its prophylactic action, are just as likely due to any one of the many other causes which may be presumed to have acted beneficially in contributing to the exemption, and to some of which we shall presently allude. We shall, assuredly, not insult our readers, nor these pages, by inquiring if the exhibition, according to Hahnemann's direction, of the $\frac{1}{432000}$ th of a grain of belladonna, at intervals not exceeding seventy-two hours, can, or ever has, preserved those exposed to the contagion of scarlet fever; we can unhesitatingly answer the question we put to ourselves in the negative. And now we pass on to the second. It may, perhaps, have occurred to our readers, that if we proposed to ourselves the settlement of this question by reference to the numbers of the facts and illustrations we advanced, that we were not doing ourselves justice, but that, on the contrary, we were assigning to the believers in the prophylaxis of belladonna an easy triumph. We beg to remind our readers of our expressed determination to give our opponents fair play; and further, of our own acknowledgment that we have been content to adduce a few of the many instances of failure of the drug in the hands of experienced and competent observers. Now, we are ready to acknowledge that, in attempting

¹ 'Fragmenta de Viribus Medicamentorum positivis sive in sano corpore humano observatis,' a Samuele Hahnemann, M.D. Edidit F. F. Quin, M.D., p. 21.

² Hull's 'Jahr,' p. 161.

to determine for ourselves the right of the question we have proposed, we escape from none of those difficulties which all are ready to acknowledge perplex the path of him who, by a reference to the experience of several or of many, endeavours to determine a question in therapeutics. We do most entirely agree with Dr. Alison, who, in the course of an article in this journal,¹ replete with valuable information and the soundest reasoning, writes:

"We do not mean to deny that questions occur in therapeutics, likewise, as to which large numbers of cases may be compared with advantage, and the 'numerical method' applied, . . . but we think it is reasonable and right for practitioners to build their opinions, as to the powers of a remedy, on observations of very different kinds besides the mere enumeration and statement of ultimate results of the cases in which it is given; or, as it is shortly and justly expressed by a practical author, that in order to make up our minds as to any such question, it is better, in general, to watch than to count."

Now, the great objection we have to the evidence which has all along been adduced in favour of the employment of belladonna in scarlatina is precisely, that "counting" has taken the place of "watching." Numerous circumstances in the particular epidemics, and in the particular cases occurring in these epidemics, have either been altogether passed over, or, at least, have not been awarded the importance they deserve. If 100 children have been exposed to the infection of scarlatina (the degree of exposure is seldom noticed, or, at all events, is very inadequately described), and belladonna has been administered, and of the 100, if either all or a very large proportion have remained free from the disease, the *post hoc ergo propter hoc* has been, in every instance, adopted; and, apparently, as if there could be no objection offered to its adoption; because belladonna was taken and the 100 children preserved—*therefore* the belladonna preserved them. Again, and irrespective of the necessity of attention being paid, in such investigations, to the minutest particulars, to which we shall presently refer, let it be held in remembrance that the great majority of facts which have been advanced in favour of belladonna are entirely of a negative character, while those we have brought forward in opposition to it are positive.

¹ January, 1854.

"I conceive," writes the lamented Dr. Pereira on this point, "twenty cases of failure are more conclusive against the opinion than one thousand of non-occurrence are in favour of it. . . . The cases which I am acquainted with are decidedly against the efficacy of the remedy."¹

Let us very shortly glance at some of the foreign cases, and then more particularly consider what Dr. Henderson calls the "Edinburgh experiments." Now as regards the former, there is not one favorable to the belladonna theory which in the least degree approaches to the "*experimentum crucis*," and not one of *any weight* at all, if, perhaps, we except the experiment of Dr. Dusterberg at Warbourg, the principal features of which have been already detailed. The choice of an individual in each family to whom the drug was not administered, and the subsequent infection of the *whole* so excepted, is, we acknowledge, a startling circumstance. *Still* we are not satisfied, even supposing the statements of Dr. Dusterberg to be perfectly accurate, that the mode of experiment was a good one. The exemption from the belladonna treatment of one half of each family would have been much fairer; the exemption of only one in each family would undoubtedly serve as predisposing the ones so exempted to contagion in another and very marked manner, which is not even alluded to by the experimenter; the mental influence exerted over the exempted child of each family, we hesitate not to say, would be very decided, and all in favour of his or her contracting the disease. But apart from this consideration, there are points in the narrative of Dr. Dusterberg which make us very sceptical as to the reality of his experiments. Unlike most authors, he speaks of a "*contact intime*" between those who had taken the belladonna and those who were affected by the disease. And further, he asserts that in most instances of those subjected to the belladonna treatment, at the end of some days there appeared "*a general eruption resembling that of measles*," and that all who presented this appearance remained free from the disease. We take leave to doubt the reality of the above altogether; indeed, as we have previously stated, it is *exceedingly doubtful* if any eruption over the skin of any kind whatever follows the internal employment of belladonna. Some of the other experiments, whose results appear in favour of the prophylactic action of belladonna, seem, as far as numbers are

¹ 'Elements of Materia Medica,' 2nd edit., vol. ii, p. 1233.

concerned, to tell well. Of 195, 14 attacked, 181 preserved (Berndt's experience). Of 525, 522 preserved, only 3 attacked (Schenek's experience). Out of 20 families, 2 attacked (Gumpert's experience). But apart altogether from any favorable circumstances which, it is not unreasonable to suppose, may have existed in these cases, and of which the exemption of so large a number as 181 out of 195, and of 522 out of 525, renders all the more likely, are not facts of this kind allowed every day to pass under our eyes, and to attract our attention, while they only, and very properly too, elicit the remark that these are unusual, or, at the most, remarkable coincidences? The truth is, in regard to scarlet fever, as well as many other infectious diseases, that an amount of capriciousness so evidently attends their progress, indeed, if we might so speak, regulates their progress, as to make it a very difficult matter to decide if, at any time, or in any degree, their occurrence is at all affected or moderated by external circumstances; and if this be true, as undoubtedly it is, how far more difficult must it be to decide if the exhibition of any prophylactic means does good?

Vaccination in its effects made itself at once recognised, and the contrast between the ravages of smallpox at the commencement of this century, and the almost entire immunity from that disease in an epidemic form which now prevails, are facts so plainly recognisable, and so appreciable, as in the instance of that disease entirely to remove the difficulty referred to. It is altogether otherwise with scarlatina; notwithstanding the introduction of belladonna, and its extensive employment both in this country and abroad, as a prophylactic against scarlet fever, we are not aware that the mortality in either has been reduced; a circumstance which in itself militates very strongly both against the prophylactic and the remedial efficacy of belladonna.¹ But let facts like the following be, moreover, taken into consideration.

¹ The total number of deaths in England and Wales from scarlatina alone during 1847 was 19,816, and in London during 1848, out of a total mortality from all causes of 57,628, there died 4756 of this disease. It may be said that belladonna was only very limited in its employment, but so far as we have been able to learn there are very few medical men who have not, at one time or other, employed it in their practice; it follows that they have abandoned it on account of its inutility, or, as is the case with several, on account of its injurious consequences.

During the prevalence of scarlatina in Edinburgh and its vicinity, the writer of this article was requested to visit a young gentleman of twelve years of age, a boarder in an educational establishment at a little distance to the west of the city.¹ He was found to be labouring under well-marked scarlet fever, the characteristic eruption of which had made its appearance the day previously. In the room in which this boy lay there were other eight boys, only two of whom had suffered from the disease; and of sixty-five boys who lived under the same roof, there were thirty-eight who were in similar circumstances. The sick boy was immediately removed to the hospital at a little distance, the room he had occupied was well aired, and the bed-clothes removed from his bed; but, with these exceptions, no other means were adopted; the eight boys continued to tenant the same room, and no other case of the disease occurred.

A few months before this occurrence, the writer visited a young lady, one of a family of eight, whose ages were from six to twenty-four, occupying a comfortable, but neither very large nor very well-ventilated house, in the new town of Edinburgh. She passed through a severe attack of scarlet fever, having in particular very severe cynanche, and afterwards very profuse desquamation. None of her sisters or brothers, nor her mother, who nursed her, nor any of the domestics, contracted the disease. In the same street—not a very large one—there were, at the same time, at least two other houses in which the disease existed. These are not singular instances, nor are they recorded here in that belief; on the contrary, we know that the experience of every practitioner could amplify such a catalogue. But from such cases we do learn not a little; and this in particular, that the disease we have to deal with is a very fickle one, and that at times, in circumstances in which we should feel disposed to look with certainty to its diffusion and spreading,

¹ At the same time cases of scarlet fever had been known to have occurred in one of the houses nearest the place of this boy's residence, and but a few days before the attack we are presently to notice, the writer had been consulted in regard to the adoption of any measures which it might be expedient to put in force, seeing the disease, for which all directors or governors of such institutions stand in great awe, was then visibly within a few hundred yards.

it will, why or wherefore we cannot tell, pleasingly disappoint us. Had belladonna been employed in either of these two instances, or in any of the numerous similar ones which have occurred, we do not doubt the exemption of the thirty-eight boys in the former, and of the eight individuals (exclusive of domestics, who were comparatively little exposed) in the latter example, would have been attributed to its prophylactic action.

As regards the "Edinburgh experiments," we attend to them here for this reason particularly, in order to notice a remark of Dr. J. D. Gillespie, who observed and described an epidemic of scarlatina which prevailed in Donaldson's Hospital.¹ Dr. Gillespie did not employ belladonna, because "had belladonna been administered, the experiment would not have been decisive without allowing the healthy children to mingle freely with the infected." This Dr. Gillespie did not deem warrantable, as very great facilities were afforded for keeping the children separated. Fifty-two children of a hundred who had not previously had the disease, took scarlet fever. Isolation of the sound from the sick, and removal of the sick from the part of the hospital occupied by the sound children, was, under Dr. Gillespie's judicious management, effective, to the extent of preserving forty-eight of the hundred children.

In criticising the accounts of the Edinburgh experiments, and contrasting, in particular, the experience of Dr. Gillespie in Donaldson's Hospital with that of Mr. Bell in George Watson's, Dr. Henderson, while assuming that some of the boys in the latter institution were protected by the belladonna, speciously endeavours to account for (what appears to us) the entire failure of the drug in Mr. Bell's hands, by urging the greater liability of the boys to contract the disease on account of the amount of belladonna taken. This argument, though ingenious, is most fallacious. We shall not go back to the Hahnemannian view of the action of belladonna in scarlatina, further than to point out this fact, and it is a very striking one, that though Mr. Bell's care and attention, and evident determination to let the experiments in his hands have fair play, led him, "*in a few days*," owing to the dilatation of the pupil and impaired vision, to lessen the amount of belladonna the boys took, yet he never in any instance for months noticed either

¹ 'Monthly Journal,' 1853.

the *sore throat* or the *rash over the skin of the body*, which Hahnemann described, and which he asserts led him to recognise in belladonna at once the prophylactic against, and the remedy in, scarlatina. Will it be contended that the small dose produces these symptoms, and the larger those which Mr. Bell has so faithfully described? If so, we can only add that after repeated attempts we have failed to produce any rash by the employment of very small doses of belladonna.

Dr. Henderson makes no objection to the experience of Dr. Newbigging, in John Watson's Hospital, yet his boys received *larger* doses than Mr. Bell's, for he gave the extract in the proportion of *one-sixth to one-fourth* of a grain twice a day, and *never* diminished it, continuing its use for five weeks. Mr. Bell began with *a fifth*, and finding, in a few days, that dose to be too large, he diminished it. Seeing that the injurious effects which led to the diminution of the dose by Mr. Bell were discernible in a few days, and that Dr. Newbigging continued the employment of the belladonna in some cases, in even larger doses than Mr. Bell had ever administered, we do think that a fairer statement of the case may be put than the one by Dr. Henderson. If *large* doses of the belladonna are to be regarded at once as exposing to the contagion of scarlatina, and as freeing from that contagion, there must be an end to all argument, for such a proposition tends in no small degree to the *reductio ad absurdum*.

Now, we do not mean to say that Dr. Henderson wishes this to be believed as his opinion, yet his words undoubtedly admit of this interpretation: for when he consigns Mr. Bell's cases to the ready action of the scarlatinal poison, owing to the *largeness* of the doses of belladonna which they have consumed, and attributes the freedom from infection which Dr. Newbigging's enjoyed to their having had the belladonna administered—he in reality says nothing less—for *during five weeks* Dr. Newbigging continued to dose the children at John Watson's Hospital with *a fourth, a fifth, and a sixth* part of a grain, while the second of these was found by Mr. Bell, in the course of *a few days*, to be too large. It will not do to say that the continuance of the drug in Dr. Newbigging's experience for a few more weeks might have caused the children to take the disease; for, most assuredly, if such effects as Mr.

Bell has described were produced with smaller doses than Dr. Newbigging for the most part employed, in the course of a few days, it is only reasonable to conclude that their continuance for a period far short of five weeks would have produced all those effects upon the boys which Dr. Henderson imagines caused Mr. Bell's boys to fall an easy prey to the contagion. Dr. Henderson determined to leave no stone unturned, having already, in regard to other experiments, suggested that some other drug than belladonna was used, conjectures that the extract of belladonna used by Dr. Newbigging was not so strong as that used by Mr. Bell. We venture, however, to remark that just on account of the variation in the strength of the extracts of belladonna, both gentlemen would satisfy themselves of the potency of the specimens they obtained.

The very accuracy which attended Mr. Bell's experiments, the evident care and attention he paid to all the particulars in connection with them, makes his experience one of peculiar value; and we have little hesitation in saying that his "excellent" paper will continue to be regarded alike an authority condemnatory of the so-called prophylactic action of belladonna, and on the general treatment of the disease. It is our opinion that experience has altogether failed to recommend the employment of belladonna, and that now we should be prepared to abandon the practice, as not only insufficient but absurd.

We sum up our disbelief in the prophylactic action of belladonna on account of the following reasons:

1. Numerous facts attest its want of success.
2. All those facts which apparently testify in its favour admit of other and ready explanations.
3. These explanations are, in themselves, perfectly satisfactory and philosophical.

In conclusion: we have thus seen that it is impossible to accept the facts which have been advanced (with as strict a regard to impartiality as possible) as establishing the prophylactic action of belladonna; for though, at first sight, not a few of them seem to give countenance to that view, these do not so in reality, and very many directly oppose it. It may be that a prophylactic against scarlatina exists, but, assuredly, it yet remains to be discovered; meantime, our knowledge of what affords the best protection against that disease cannot be said to

have advanced far beyond what was known to Frank, in whose words, equally truthful now as when written, we shall not inappropriately close:—"Salus igitur in solâ fugâ contagii quæri debet, cui scopo regulæ adversus febres contagiosas jam traditæ, præcipue vero cura severa scholarum et ambulacrorum publicorum infantilium inserviunt.



